



**PERCEPTION OF MENTORING BEHAVIOURS  
AMONG USM MEDICAL STUDENTS**

**DR. JAMILAH AL-MUHAMMADY BT MOHAMMAD**

Dissertation submitted in partial fulfilment of the requirements for the  
degree of Master of Science in Medical Education

**UNIVERSITI SAINS MALAYSIA**

**2016**

## **DECLARATION**

**This is to certify to the best of my knowledge, the dissertation is entirely the  
work of the candidate, Jamilah Al-Muhammady binti Mohammad**

---

**(Dr Muhamad Saiful Bahri Yusoff)**

**Main Supervisor**

**Medical Education Department**

**School of Medical Sciences**

**Universiti Sains Malaysia**

## **ACKNOWLEDGEMENT**

In the name of Allah, Most Gracious, Most Merciful

Alhamdulillah, I owe my deepest gratitude to Allah The Almighty whose blessing has given me the courage and strength to finish this whole work of study. Without Your help and guidance Oh Allah this study would not have been possible.

I would like to extend my heartfelt gratitude and appreciation to many individuals that have helped me during the preparation and completion of this thesis and throughout my two years of study in Masters of Science in Medical Education in School of Medical Sciences, USM.

My deepest appreciation to my family especially both my parents who supported me by doa (prayer) and encouragement to complete my study. To my husband Dr Mohammad Zikri Ahmad and my children, all of you have sacrificed a lot for the past two years, and with that I wish to say thank you from the bottom of my heart.

I cannot express enough thanks to my main supervisor, Dr Muhamad Saiful Bahri bin Yusoff from the Medical Education Department, School of Medical Sciences, USM for his endless motivation, enthusiasm and patience in guiding me up to the end of completing this study. For the unwavering support, I am truly grateful.

I would like to express my gratitude to my co-supervisor, Dr Hj Mohd Zarawi bin Mat Nor and Dr Ahmad Fuad bin Abdul Rahim from Medical Education Department for their concern, help and support throughout the process of completing this study.

My heartfelt thanks to the Dean and Deputy Dean of School of Medical Sciences, USM for their permission and cooperation for me to conduct this study.

To my colleagues and classmates; Dr Muhd Al-Aarifin Ismail, Dr Anisa Ahmad, Dr Nurhanis Syazni and Ms Siti Suriani Abdul Razak, thank you for all the help and continuous support for the past two years. To Dr Siti Nurma Hanim Hadie, special thanks and appreciation goes to you for becoming a *mentor* to me.

I would also like to extend my gratitude to all lecturers and supporting staffs in Medical Education Department for their moral support directly or indirectly to complete this study.

Last but not least, I would like to thank all the medical students for cooperating and participating in this study.

May Allah Taala reward all of you with the best of rewards.

## **TABLE OF CONTENT**

	<b>Page</b>
<b>DECLARATION</b>	i
<b>ACKNOWLEDGEMENT</b>	ii
<b>TABLE OF CONTENT</b>	iv
<b>LIST OF TABLES</b>	viii
<b>LIST OF FIGURES</b>	x
<b>ABBREVIATION</b>	xi
<b>ABSTRAK</b>	xii
<b>ABSTRACT</b>	xiv
<b>CHAPTER 1: INTRODUCTION</b>	
1.1 Title	1
1.2 Background of the study	1
1.2.1 Mentoring system practice in USM medical school	3
1.2.2 Mentoring relationship structure in USM medical school	5
1.3 Justification of the study	7
1.4 Benefit of the study	8
1.5 Objectives of study	9
1.5.1 General objective	9
1.5.2 Specific objectives	9
1.6 Research hypothesis	10
1.7 Operational definition	10

<b>CHAPTER 2: LITERATURE REVIEW</b>	<b>Page</b>
2.1 Definition of mentoring	12
2.2 Concept of mentoring	13
2.3 Purpose of mentoring	14
2.4 Types of mentoring	15
2.4.1 Formal mentoring	16
2.4.2 Informal mentoring	16
2.5 Mentoring models	17
2.5.1 One-to-one mentoring	17
2.5.2 Group mentoring	18
2.5.3 Peer mentoring	18
2.5.4 Multiple mentoring	19
2.6 Good mentoring relationships	20
2.6.1 Internal factors	20
2.6.2 External factors	21
2.6.3 Biological factors	21
2.7 Mentoring in medicine	22
2.7.1 Importance of mentorship in medicine	23
2.7.2 Outcomes for postgraduate and faculty members	23
2.8 Conceptual framework	24
2.8.1 Mentoring relationship structure (MRS)	25
2.8.2 Engagement	25
2.8.3 Autonomy support	25
2.8.4 Competency support	26
2.9 Measurements of mentorship programs	26
2.9.1 Measurements of mentor behaviours	26
2.9.2 Other mentorship measurements	27
 <b>CHAPTER 3: METHODOLOGY</b>	
3.1 Study design	29
3.2 Study population	29
3.3 Sample size calculation	29
3.4 Sample and sampling method	31

	<b>Page</b>
3.5 Inclusion criteria	31
3.6 Exclusion criteria	31
3.7 Duration of the study	32
3.8 Mentor distribution in USM medical school	32
3.9 Structure of mentor groups in USM medical school	32
3.10 Research tools	33
3.10.1 Mentor Behavior Scale (MBS)	34
3.10.1.1 The rating scale and interpretation of MBS	35
3.10.1.2 The validity evidence of MBS	36
3.11 Ethical consideration	37
3.12 Briefing session and subject recruitment	38
3.13 Data collection	38
3.13.1 Demographic data	39
3.14 Data analysis	40
3.15 Research activities flowchart	41

## **CHAPTER 4: RESULTS**

4.1 Introduction	43
4.2 Demographic data	44
4.3 Medical students' perception on mentoring behaviours	46
4.4 Summary of factors associated with the measured outcomes	68

## **CHAPTER 5: DISCUSSION**

5.1 Demographic Data	70
5.2 Highlight of findings	70
5.3 Supportive Mentoring Behaviours	71
5.4 Domain 1: Mentoring Relationship Structure (MRS)	71
5.4.1 Mentoring Relationship Structure and Race	72
5.4.2 Mentoring Relationship Structure and Year of Study	72
5.4.3 Mentoring Relationship Structure and Frequency and Duration	73

	<b>Page</b>
of Meeting	
5.4.4 Mentoring Relationship Structure and other factors	74
5.5 Domain 2: Engagement	75
5.5.1 Engagement and Year of Study	75
5.5.2 Engagement and Frequency and Duration of Meetings	77
5.5.3 Engagement and other factors	78
5.6 Domain 3: Autonomy Support	79
5.6.1 Autonomy Support and Frequency and Duration of Meetings	80
5.6.2 Autonomy Support and other factors	80
5.7 Domain 4: Competency support	82
5.7.1 Competency Support and Mode of Mentor Selection	83
5.7.2 Competency Support and Year of Study	84
5.7.3 Competency Support and Frequency and Duration of Meeting	85
5.7.4 Competency Support and other factors	85
5.8 Global Supportive Mentoring Behaviour	86
5.9 Limitations of the study	89
5.10 Recommendations	90
5.11 Conclusion	91
<b>REFERENCES</b>	<b>92</b>
<b>APPENDICES</b>	
Appendix A Validated Mentor Behavior Scale (MBS) questionnaire	
Appendix B Research ethics committee approval	
Appendix C Participant information sheet and informed consent form	



## LIST OF TABLES

		<b>Page</b>
<b>Table 2.1</b>	Types of mentoring and subdivisions of its types	19
<b>Table 3.1</b>	Calculation of sample size for each constructs using SPSS software	30
<b>Table 3.2</b>	Number of medical students studying in USM medical school for 2015/2016 academic session	30
<b>Table 3.3</b>	Mentor group structure according to different phases of medical degree program for academic session 2014/15	33
<b>Table 3.4</b>	List of domains and the items of Mentor Behavior Scale questionnaire	34
<b>Table 3.5</b>	The goodness of fit indices of MBS	36
<b>Table 4.1</b>	Demographic data of year 2, 3, 4 and 5 medical students as the respondents	44
<b>Table 4.2</b>	Total mean score of mentees' perception on supportive mentoring behaviours according to domains	46
<b>Table 4.3</b>	Mean score of students' perception towards mentors' supportive mentoring behaviours according to each item	47
<b>Table 4.4</b>	Comparison of median supportive mentoring behaviours score between gender	49
<b>Table 4.5</b>	Comparisons of median supportive mentoring behaviours score between race	50
<b>Table 4.6</b>	Multiple comparison of supportive mentoring behaviours between race	51
<b>Table 4.7</b>	Comparison of median supportive mentoring behaviours score between entry qualification	52
<b>Table 4.8</b>	Comparison of median supportive mentoring behaviours score between mode of mentor selection	53
<b>Table 4.9</b>	Comparison of median supportive mentoring behaviours score between year of study	54
<b>Table 4.10</b>	Multiple comparison of supportive mentoring behaviours between year of study	57

		<b>Page</b>
<b>Table 4.11</b>	Comparison of median supportive mentoring behaviours score between frequency of meeting	58
<b>Table 4.12</b>	Multiple comparison of supportive mentoring behaviours between frequency of meeting	61
<b>Table 4.13</b>	Comparison of median supportive mentoring behaviours score between duration of meeting	64
<b>Table 4.14</b>	Multiple comparison of supportive mentoring behaviours between duration of meeting	66
<b>Table 4.15</b>	Summary of the findings	68

## LIST OF FIGURES

		<b>Page</b>
<b>Figure 1.1</b>	Evolution of mentoring program in USM medical school	7
<b>Figure 2.1</b>	Conceptual framework on supportive mentor behaviours and its impacts	28
<b>Figure 3.1</b>	Research activities flowchart	42
<b>Figure 4.1</b>	Comparison of median mentoring supportive behaviour score by frequency of meeting	60
<b>Figure 4.2</b>	Comparison of median mentoring supportive behaviour score by duration of meeting	65

## ABBREVIATIONS

<b>USM</b>	Universiti Sains Malaysia
<b>PA</b>	Academic Advisor
<b>SPPDP</b>	Student Personal and Professional Development Program
<b>PBL</b>	Problem-based learning
<b>SPICES</b>	S-Student-centred learning, P-Problem-based learning, I-Integrated, C-Community-based education, E-Electives, S-Systematic program
<b>CFCS</b>	Community and Family Case Study
<b>MSM</b>	Mentoring Sociomotivational Model
<b>MRS</b>	Mentoring Relationship Structure
<b>MBS</b>	Mentor Behavior Scale
<b>S.D</b>	Standard deviation
<b>DREEM</b>	Dundee Ready Educational Environment Measure
<b>WRMR</b>	Weighted root mean square residual
<b>RMSEA</b>	Root Mean Square Error of Approximation
<b>CFI</b>	Comparative fit index
<b>TLI</b>	Tucker-Lewis Index
<b>SPSS</b>	Statistical Package for Social Sciences
<b>Max.</b>	Maximum
<b>IQR</b>	Interquartile range

## **ABSTRAK**

### **PERSEPSI PELAJAR PERUBATAN USM TERHADAP TINGKAH LAKU MENTOR**

**PENGENALAN:** Para pendidik di seluruh dunia bersetuju bahawa hubungan dengan mentor yang berkesan telah terbukti menggalakkan perkembangan peribadi dan profesional para doktor masa hadapan. Hubungan ini dipengaruhi oleh pelbagai faktor. Malangnya, terdapat kekurangan bukti untuk menyokong keberkesanan amalan mentor di Pusat Pengajian Sains Perubatan USM. Daripada tanggapan itu, kajian ini bertujuan untuk menilai tingkah laku mentor di Pusat Pengajian Sains Perubatan USM.

**METODOLOGI:** Satu kajian keratan rentas telah dijalankan ke atas 632 pelajar perubatan merangkumi pelajar tahun dua hingga tahun lima. Tingkah laku mentor diukur melalui *Mentor Behaviour Scale* (MBS) dan diberi penggredan oleh pelajar perubatan. MBS mengukur empat aspek kelakuan mentor termasuk struktur perhubungan mentor, penglibatan aktif mentor, sokongan autonomi dan sokongan akademik. Setiap aspek ditafsirkan sebagai bernilai positif, cadangan untuk penambahbaikan dan memerlukan perhatian khusus. Analisis data telah dilakukan menggunakan SPSS versi 22.

**KEPUTUSAN:** Seramai 508 (80.4%) responden telah mengambil bahagian dalam kajian ini. Tingkah laku mentor secara keseluruhan dicadangkan untuk penambahbaikan seperti yang ditunjukkan oleh skor min di antara 45 - 59. Struktur perhubungan mentor [Min (SD) = 28.44 (7.46)], penglibatan aktif mentor [Min (SD) = 6.76 (2.12) ], dan sokongan kompetensi [Min (SD) = 10.51 (3.10)] dicadangkan untuk penambahbaikan. Sokongan autonomi [Min (SD) = 5.85 (1.68)] telah dilihat sebagai satu aspek yang memerlukan perhatian khusus. Jenis kaum, mod pemilihan mentor, tahun pengajian, kekerapan perjumpaan dan tempoh perjumpaan memberikan kesan kepada tingkah laku mentor. Tingkah laku mentor tidak dikaitkan dengan jantina dan kelayakan masuk para pelajar ke USM.

**KESIMPULAN :** Tingkah laku mentor di Pusat Pengajian Perubatan USM dianggap oleh pelajar sebagai memuaskan namun terdapat ruang untuk penambahbaikan. Walau bagaimanapun, tinjauan selanjutnya diperlukan untuk mengkaji sebab-sebab persepsi yang menurun ke atas sokongan autonomi. Di samping itu, beberapa faktor perlu diambil kira untuk meningkatkan kualiti sistem mentor di Pusat Pengajian Sains Perubatan USM.

## **ABSTRACT**

### **PERCEPTION OF MENTORING BEHAVIOURS AMONG USM MEDICAL STUDENTS**

**INTRODUCTION:** Educators around the globe have agreed that effective mentoring relationships have been proven to promote personal and professional growth of future doctors. These relationships are affected by multiple factors. Unfortunately, there is lacking of evidence to support the effectiveness of mentoring practice in USM medical school. From that notion, this study aimed to evaluate the mentoring behaviours of mentors in USM medical school.

**METHODOLOGY:** A cross-sectional study was conducted on 632 second to fifth year medical students. The mentoring behaviours were measured by the Mentor Behavior Scale (MBS) and rated by the medical students. The MBS measures four aspects of mentoring behaviour that include mentoring relationship structure, engagement, autonomy support and competency support. Each aspect was interpreted as positive areas, room for improvements, and areas of concern. Data analysis was performed by SPSS version 22.

**RESULTS:** A total of 508 (80.4%) respondents participated in the study. The global supportive mentoring behaviour was perceived as areas for improvements as indicated by mean score of in between 45 – 59. The mentoring relationship structure [Mean (SD) = 28.44 (7.46)], engagement [Mean (SD) = 6.76 (2.12)], and competency support [Mean (SD) = 10.51 (3.10)] were perceived as areas for improvement as well. The autonomy support [Mean (SD) = 5.85 (1.68)] was

perceived as an area of concern. Race, mode of mentor selection, year of study, frequency of meeting and duration of meeting significantly affecting the mentoring behaviours. Mentoring behaviours were not associated with gender and entry qualification.

**CONCLUSION:** The mentoring behaviours of mentors in USM medical school were perceived by students as acceptable yet there were rooms for improvements. However, further inspection is required to explore reasons for low perception towards the autonomy support. In addition, several factors should be considered to enhance the quality of mentoring system in the medical school.



# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Title**

Perception of Mentoring Behaviours among Universiti Sains Malaysia Medical Students.

### **1.2 Background of the study**

Mentoring programs are widely described in the literature in the field of business, education and health professions (Berk *et al.*, 2005; Riley and Wrench, 1985; Sirridge, 1985). It is a critical component of effective undergraduate education as it uses the apprentice model where a faculty member with more experience imparts knowledge, support and guidance to his protégé on academic matters and also non-academic matters (Jacobi, 1991). More than 20 decades ago, mentoring programs were frequently found in the nursing field in early 1990s for medical profession. For medical students and faculty, structured mentoring programs were developed since late 1990s (Buddeberg-Fischer and Herta, 2006).

From the literature search it was noted that mentoring relationships in academic medicine can be divided into three, between (i) senior and junior medical students (peer

mentoring), (ii) medical students and faculty members and (iii) junior and senior faculty members (peer/faculty mentoring). On top of that, there are different models or relationships between mentor and mentee; the *traditional* dyadic one-to-one mentoring; *group* mentoring, which is a small group of mentees supervised by one mentor; individual or group mentoring with *multiple* mentors; and mentoring among *co-equals* (peer mentoring) (Buddeberg-Fischer and Herta, 2006).

Mentoring programs are prevalent in academic medicine (Jackson *et al.*, 2003) as it gives benefits to both mentor and mentee as well as to the organisation (Garmel, 2004; Pololi and Knight, 2005; Ramani *et al.*, 2006; Taherian and Shekarchian, 2008). Furthermore for the mentees, effective mentoring programs will also promote academic growth, personal and professional development and help in psychosocial and career related support (Aagaard and Hauer, 2003; Kalén *et al.*, 2010; Sambunjak *et al.*, 2006; Taherian and Shekarchian, 2008).

Despite the knowledge of its importance, studies done to investigate the effectiveness of mentor-mentee relationships are limited (Berk *et al.*, 2005; Buddeberg-Fischer and Herta, 2006), especially studies that evaluate the quality of mentoring relationships in medical schools. Besides that, studies regarding mentoring relationships between medical students and faculty are also limited as compared to mentoring relationships between faculty members (Dimitriadis *et al.*, 2012). On top of that, minimal research were done with regard to medical students' perception on mentoring relationship in

medical schools (Hauer *et al.*, 2005). Therefore, this study aims to bridge the gap, by measuring mentee's perception on mentor's supportive behaviour using a validated instrument recently available (Brodeur *et al.*, 2015), as positive and supportive mentor behaviour is one of the contributing factors to achieve high mentoring relationship quality (MQR) (Allen *et al.*, 2006). This is important as one of the factor of poor or unsuccessful mentoring is the mentor's behaviour and mentor's uncertainty regarding their role (Cull, 2006). In nursing, generally students reported feelings of frustration, lack of feedback, variable contact with mentors and an unsupportive atmosphere as the consequences of having an ineffective mentor (Andrews and Chilton, 2000).

#### **1.2.1. Mentoring system practice in USM medical school**

The Universiti Sains Malaysia (USM) medical school has been implementing mentoring system ever since its establishment, in order to help the medical students cope with their studies. The first formal mentoring system in USM medical school was the academic advisor (PA) system, a one-to-one mentoring relationship between a lecturer who acted as academic advisor, and a student. This PA mentoring relationship began as early in year 1 and lasted until the student graduated. Although PA system involved a structured mentoring relationship and was coordinated by the school, the system was perceived to have some drawbacks. Despite the fact that students were encouraged to meet their PA personally on a regular basis to discuss about their academic achievement and get advice if any problems occur, there was no proper scheduled time allocation for the meeting. Furthermore, the varying degrees of interest among the lecturers to become mentors also

affect the smoothness of the system as they might contribute to the mismatch between mentors and mentees.

Due to several factors mentioned above, the school decided to gradually implement group mentor system starting from the academic session of 2009/2010, which is under the Student Personal and Professional Development Program (SPPDP). This mentor system is based on “homeroom” or “family” concept where one volunteered lecturer will be mentoring a group of 10 to 12 students. The mentors are expected to provide consistent support, guidance, and help as well as act as a positive role model to the student. Initially, this group mentor system was implemented only for the year 1 medical students as a supplement to the PA system. However, since this mentoring program was perceived to result in positive outcome of students’ academic achievement and well-being, the system has been adapted to other batches of medical students starting from 2014/2015 academic session. All medical students from year 1 to year 5 were grouped according to either their problem-based learning (PBL) or clinical postings groups and given one family mentor.

Apart from faculty-student mentoring system, the USM medical school also adapted a formal peer-mentoring program in 2007, which was termed as Big Siblings (BigSib). In this program, the year 1 students were mentored by their seniors in order to help them in adapting with the medical learning environment.

### **1.2.2 Mentoring relationship structure in USM medical school**

In general, the mentoring relationship structure of formal mentoring program in USM medical school is aligned with the medical curriculum. The curriculum of USM medical school is of integrated system that utilises SPICES model (i.e. Student-centred learning, Problem-based learning, Integrated, Community-based education, Electives, Systematic program) as its framework (Zabidi-Hussin, 2006). This problem-solving and community-oriented curriculum underwent major revamp in 2014, in which the initial three phases of medical study were restructured into two phases. Phase I of the new curriculum covers the first two years of pre-clinical study, in which the students learn integrated basic sciences subjects, with organ-system approach and problem-based learning. While in Phase II, year 3, 4 and 5 medical students undergo rotations of clinical training, through which they learn about clinical clerkship with problem solving approach of different disciplines.

As for 2009/2010 academic session, group mentor was introduced only to year 1 students and the mentors were volunteered lecturers from basic sciences/non-clinical departments while the rest of the medical students were still allocated a personal advisor, through PA system mentoring. In 2011/2012 academic session, Phase II and III (year 2, 3 and year 4, 5 medical students) were given a group mentor. During this time, Community and Family Case Studies (CFCS) supervisors were appointed as group mentor for year 3, while department or clinical rotation supervisors were appointed as

group mentor for year 4 and 5. These mentors were the same lecturers who rate the students after each clinical posting.

However, since academic session 2014/2015, based on the students' feedback, slight changes were made regarding mentor selection as most of the students were not comfortable with the same lecturers who rated them at the end of each posting and at the same time became their group mentor. Year 3 students remained having CFCS supervisor as their mentor, but for year 4 and 5 students, volunteered clinical lecturers were appointed as group mentor for Phase III.

In addition, the BigSib peer mentoring program involved mentoring relationship between groups of year 1 students who were mentored by two year 2 students. Apart from helping the year 1 students in adapting with the new environment in medical school, this program promoted personal development of the mentees as well as mentors. The seniors were selected based on their academic performance, attitude and their performance in interview; and they act as the eyes and ears to the school committee. The seniors act as Siblings, Eyes and Ears for the school, Counsellors, Role-models and Trainers (SECRET) (Yusoff *et al.*, 2010a). However due to several factors, the BigSib peer mentoring programme was discontinued in 2010 despite receiving good feedback from the students. Figure 1.1 shows the evolution of mentoring system from academic advisor to peer and group mentoring program in USM medical school.

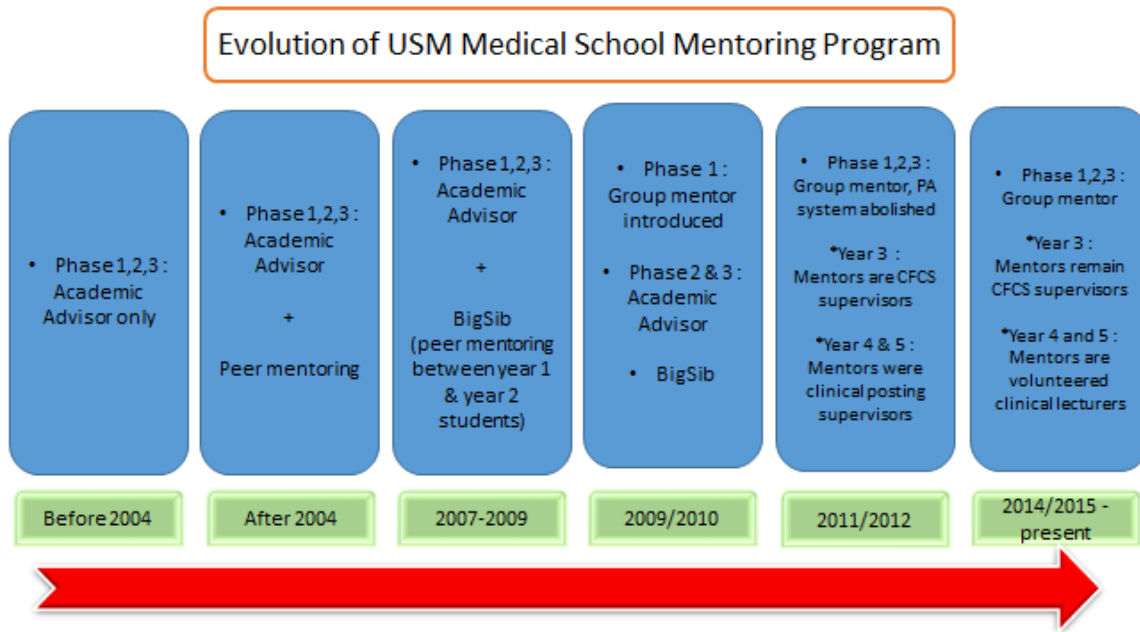


Figure 1.1: Evolution of mentoring program in USM medical school

### 1.3 Justification of the study

Despite its importance, there is paucity of research in mentoring relationships between medical students and faculty. Since the group mentoring system in USM medical school was fully established in 2011, there were lack of studies exploring on the implementation, importance and effectiveness of the system. However, a cross-sectional study regarding peer mentoring program in 2008 was published earlier (Yusoff *et al.*, 2010a). This study evaluated the students' perceptions and attitudes towards the BigSib peer mentoring program which was implemented in 2007 and lasted for three years back then. To our concern, the peer mentoring program was the only program evaluated ever

since and no further literature was found on mentoring programs or specifically measurement of mentoring behaviours in USM medical school.

This study was designed to explore the students' insight with regard to mentoring relationship in particular the mentor's behaviours in USM medical school, as the data would be able to provide meaningful feedback to the institutional mentoring coordinator (chairperson of the Student Personal and Professional Development Program-SPPDP) for future improvement. Furthermore, this is the best time to conduct the study as all medical students now have a mentor under the current system. By investigating the gap, it is hoped that this study can be an added value to the quality assurance of USM medical school curriculum.

#### **1.4 Benefit of the study**

The aim of this study is to identify the mentor's supportive mentoring behaviours from mentees' perspectives who are the medical students. Students' perceptions are important because they provide insights of the mentoring behaviours. Hence, it will provide an evidence of the current quality of mentors in USM medical school thus indirectly reflects the effectiveness of mentoring program in the school. In addition, further research on mentoring effectiveness can be done later based on the obtained results. It is hoped that the outcomes of this research will be beneficial to the students and future USM medical students. This study can also inform the relevant authority regarding the



mentors' selection criteria. On top of that, structured training programs for the mentors can also be implemented once we know the quality of the mentoring relationship in USM medical school.

## **1.5 Objectives of study**

### **1.5.1 General objectives**

To evaluate the perception of medical students towards the supportive behaviours of their mentor during medical training in USM medical school.

### **1.5.2 Specific objectives**

1. To determine medical students' perception towards the supportive behaviours of their mentors during medical training in terms of;
  - a) Mentoring relationship structure
  - b) Engagement
  - c) Autonomy support
  - d) Competency support
  
1. To determine factors (e.g. years of study, gender, race, etc) that associate with the students' perception towards the supportive behaviours of their mentors.

## **1.6 Research hypothesis:**

1. There is significant difference of mean score of mentoring relationship structure between factors.
2. There is significant difference of mean score of engagement between factors.
3. There is significant difference of mean score of autonomy support between factors.
4. There is significant difference of mean score of competency support between factors.

## **1.7 Operational definition:**

### **(a) Formal mentoring**

Refers to a systematic mentoring program whereby the mentees receive assistance and insight from an experienced mentor, usually involves a third party who organise and initiate the mentoring relationship

### **(b) Supportive mentor behaviours**

Refers to the expected mentor behaviour that comprises the four domains of the Mentor Behavior Scale (MBS); i) mentoring relationship structure (MRS), ii) engagement, iii) autonomy support and iv) competency support

(c) Mentoring relationship structure (MRS)

One of the supportive mentor behaviour which includes giving feedback, organising the meetings and discuss meeting goals between the two parties

(d) Engagement

Refers to the way the mentor builds up rapport and bonding, spend quality time and listen attentively to their mentees during mentoring sessions

(e) Autonomy support

Defined as the mentor's assistance to the mentee in certain decision making process. It is the opposite behaviour of mentor's control in the relationship

(f) Competency support

Refers to positive support given to the mentees in both situations; whether successful or failure. Competence support tackles the basic necessity to recognize oneself as academically proficient

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Definition of mentoring

The word “mentor” originated from the ancient Greek mythology. In The Odyssey, King Odysseus left home to participate in the Trojan War and before he left, he delegated the care of his son, Telemachus to his best friend, Mentor. During Odysseus’ absence, Mentor nurtured, guided and protected Telemachus to his rightful place in Greek society (Crisp and Cruz, 2009). Despite its long history, there is an absence of widely accepted definition of mentoring (Crisp and Cruz, 2009; Mertz, 2004). Currently there are more than 50 definitions of mentoring described in the literature (Aagaard and Hauer, 2003). One classic definition of mentor is “...someone of a higher rank or advanced experience who guides, teaches, and develops a novice person” (Carr *et al.*, 2003). Besides that, the one most widely cited in the United Kingdom literature is “a process whereby an experienced, highly-regarded, empathic person (the mentor) guides another usually younger individual (the mentee) in the development and re-examination of their own ideas, learning, and personal or professional development. The mentor, who often but not necessarily works in the same organization or field as the mentee, achieves this by listening or talking in confidence to the mentee” (SCOPME 1998 cited in (Taherian and Shekarchian, 2008). Another simple definition that best described mentoring is “an off-line help by one person to another in making a significant transition in knowledge, work or thinking” (Megginson and Clutterbuck, 1995).

## 2.2 Concept of mentoring

From the literature search, it was noted that mentoring is practiced in diverse settings. In the mid-1970s, mentoring started to come into focus in the fields of education (youth and academic), management/organization and psychology (Jacobi, 1991). Mentoring is a two-way dynamic, symbiotic and complex relationship whereby both mentor and mentee gain benefit in terms of advancing careers and career satisfaction (Andrews and Chilton, 2000; Healy and Welchert, 1990).

Since the term mentoring is defined very broadly in the literature, it is also used to describe variety of roles such as small-group leader, supervisor, academic advisor, or role model (Rose *et al.*, 2005). From the literature review, it was noted that other words to describe the role of a mentor are teacher, counselor, coach, facilitator, motivator and friend.

Besides psychosocial and career-related functions, some researchers added in role modelling as another possible function of mentoring (Jacobi, 1991; Russell and Adams, 1997; Scandura and Ragins, 1993). This means that a mentor is expected to become a role model for their mentees. Therefore, a mentoring relationship should be an intentional, nurturing, protective and supportive process, and as stated above involves an aspect of role modelling (Anderson and Shannon, 1988). Souba (1999) coined the acronym M.E.N.T.O.R to summarize the roles of a mentor; Motivate, Empower & Encourage, Nurture self-confidence, Teach by example, Offer wise counsel and Raise the performance bar.

However, the roles of a mentor are very much ambiguous therefore can easily be misunderstood, and many are still confused regarding the difference between mentoring, coaching and tutoring (Frei *et al.*, 2010). In view of this, both mentors and mentees are sometimes uncertain regarding their exact roles in this important relationship. Therefore, before implementing this program, it is important for both parties to fully understand the exact roles of the mentor (Kalén *et al.*, 2012) and for the mentees to be proactive and take part in ‘managing up’ the relationship (Zerzan *et al.*, 2009).

### **2.3 Purpose of mentoring**

Generally, the purpose of mentoring is to offer help and support to the mentee as well as enhancing the mentees’ overall performance. According to (Dubois and Karcher, 2005), the purpose of youth mentoring programs is to reduce at-risk behaviour that was common among the adolescents and improving social and academic functioning. In addition, (Larose and Tarabulsky, 2005) also highlighted that youth mentoring was done to help the academically at risk students and prevent them from problematic behaviour at school which commonly lead to school drop outs.

For mentoring relationships that occur in the workplace, the purpose of mentoring programs implemented is to enhance and improve the personal, professional and career development of the mentee (Kram, 1985). This is done by matching a less experienced mentee with more experienced or senior individuals within the organisation.

Two systemic reviews on mentoring programs in academic medicine revealed that the purpose of the mentorships is to support the mentees' personal and professional growth, cultivate professionalism and provide career counselling (Buddeberg-Fischer and Herta, 2006; Frei *et al.*, 2010). On top of that, Meinel *et al.* (2011) pointed out that mentoring programs for medical students in Germany were done as a basic platform to enhance academic performance, create professional connections and provide counselling for the mentees.

## **2.4 Types of Mentoring**

Mentoring in the professional field can develop either spontaneously, based on mutual interests or it can be set up institutionally. There are two types of mentoring described in the literature; formal and informal (Ehrich *et al.*, 2004; Taherian and Shekarchian, 2008).

### **2.4.1 Formal mentoring**

In formal mentoring, a mentor is assigned by a third party in the organisation to a mentee or vice versa. It is highly structured and their roles are clearly defined. Besides that, in formal mentoring the meetings between the mentor and mentee are arranged at regular intervals (Crisp and Cruz, 2009; Sambunjak *et al.*, 2010). However, studies have highlighted the limitations of formal mentoring that resulted in perceived ineffectiveness of the system by both parties. These include feeling of being forced into the relationship and lack of ‘chemistry’ between mentee and mentor that could result in mismatch between the mentee and mentor (Jackson *et al.*, 2003). Since this type of mentoring relationship is more structured, it focuses more on increasing the productivity of an organization (Shollen *et al.*, 2014). Hence, the relationship typically ends once the objective has been fulfilled.

### **2.4.2 Informal mentoring**

As for informal mentoring, mentees will usually select their own preferred mentor (self-selection), there is no organisational interference and it is not structured. Besides that, in this form of mentoring relationship, both mentees and mentors are not sure of their exact roles. Meetings are done as required and it is up to any one of the two to set the date and time. This type of mentoring, typically focuses on long-term goals and can sometimes develop into long-term friendship (Crisp and Cruz, 2009; Inzer and Crawford, 2005).



Unlike formal mentoring that is based on obtaining specific outcome, the informal mentoring focuses more on developing personal growth of the mentees, and thus resulted in the long-term friendship between both parties (Shollen *et al.*, 2014).

## **2.5 Mentoring models**

In the literature, many studies described the different mentoring models that were conducted by various medical schools. One study mentioned regarding the existence of seven mentoring models which are; dyad, peer, facilitated peer, group, speed, functional, and distance (Kashiwagi *et al.*, 2013). However, the ones most discussed in the literature are the three models listed below:

### **2.5.1 One-to-one mentoring**

This model is the classic or traditional type of mentoring also known as dyadic mentoring. It is a process where an “experienced, highly regarded, empathetic person (mentor) guides a usually younger individual (mentee) in the development and re-examination of their own ideas, learning, and personal or professional development” (Taherian and Shekarchian, 2008). Meanwhile in the working organisation context, Kram (1985) defined it as “One-on-one, hierarchical relationship between a more experienced organizational member who attempts to meet the vocational and

psychosocial needs & a less experienced employee”. This is the most popular type of mentoring model described in the literature.

### **2.5.2 Group mentoring**

There is a variety of definition and practise for this type of mentoring (Herrera *et al.*, 2000) . Typically in group mentoring, a small group of mentees (6-10) regularly meets up with one or a team of mentors (Karcher *et al.*, 2006). The mentor’s role is to initiate and facilitate the group discussion (Darwin and Palmer, 2009). In USM medical school, the mentor is known as family mentor and applies the homeroom concept. Some group mentors conduct the mentoring sessions either in a group or the mentor meets one mentee at a time to discuss or share personal matters (Foster, 2001).

### **2.5.3 Peer mentoring**

Peer mentoring exists between two colleagues at the same level. It has been use in faculty-to-faculty models as well as student-to-student models. A faculty peer mentor has undergone certain events that contributed to specific experience, such as in terms of research development projects, i.e. presenting in a scientific conference or writing a manuscript (Santucci *et al.*, 2008). On the other hand, peer mentee is a novice in facing with the situation of obtaining the experience. Since mentor and mentee are almost at the same level, the adaptation period of mentee to learn certain knowledge and skills would be faster as both felt more comfortable with this type of mentoring (Cheah *et al.*, 2015).

In the higher education, effective peer mentoring leads to improvement of student retention and increase academic competence (Lennox Terrion *et al.*, 2007; Loots, 2009)

#### 2.5.4 Multiple mentoring

Multiple mentoring involves a person or a group of mentees seeking advice and guidance from a number of mentors also known as the multiple-mentor-experience model. There are many benefits of this model, as the mentee can get several different points of view regarding certain cases. Besides that, there is an increased likelihood that at least one mentor has faced a similar situation as the mentee is facing and the variety of mentors has different areas of expertise for different development needs (Carraher *et al.*, 2008). In contrast, Huybrecht *et al.* (2011) who conducted research for mentorship in nursing suggested the multiple mentoring to be avoided due to fear of lack of responsibility and accountability among the mentors therefore the mentees might feel neglected by the mentors . Listed below is the summary of types of mentoring and its subdivisions.

Table 2.1: Types of mentoring and subdivisions of its types

Type of mentoring	Mentoring models
Formal	Traditional
	Peer
	Group
	Multiple
Informal	None

## **2.6 Good mentoring relationships**

As mentoring is a symbiotic mutual relationship between two parties, there are several factors affecting the relationship which can be categorised into internal, external and biological factors. One of the important factors is the mentor's attitude or behaviour towards the mentees during mentorship which will be elaborated in the conceptual framework subheading.

### **2.6.1 Internal factors**

This includes both the mentees' and mentors' intrinsic motivation (Ryan and Deci, 2000) and individual personality (Lee *et al.*, 2000; Straus *et al.*, 2009) towards the mentoring programs. Besides that, for the mentors, experience and behaviour were also described as the factors that promote good mentoring relationships (Brodeur *et al.*, 2015; Straus *et al.*, 2013). Positive mentoring relationship could be achieved if both mentors and mentees have positive internal factors. For instance, a mentor who has good interpersonal attitude usually would not be judgmental to their mentees, often make themselves available for supervision and consultation as well as encourage mentees to be excellent in their area. On top of that, mentee with high intrinsic motivation usually would be able to shape their performances based on the advice and guidance by the mentor (Straus *et al.*, 2009; Zerzan *et al.*, 2009).

### **2.6.2 External factors**

Likewise, a good mentoring relationship is influenced by external forces that shaped the mentoring structure. A proper mentor selection would be able to overcome the issue of mentors being forced to be a mentor, which could disrupt the mentor-mentee relationship. Studies shows that mentees of the forced-appointed mentors reported their mentor to disinterested, self-absorbed, and neglectful in their relationship (Eby *et al.*, 2004). Another important external factor is the mentor training programs, from which a mentor could benefit in acquiring supervision and mentoring skills (Pfund *et al.*, 2006; Ramani *et al.*, 2006). Reward system to the mentors has also been identified as one of the contributing factors to ensure successful programs (Colares *et al.*, 2009).

### **2.6.3 Biological factors**

Biological factors that associated with positive mentoring relationships include age, gender and ethnicity. According to Jacobi (1991) the importance of matching students with mentors and of the same gender or ethnicity is divided between researchers. However, in a study done earlier, it was noted that female students prefer the same sex (Flach *et al.*, 1982) but in a study by Palepu *et al.* (1998) most women faculty (80%) reported that it was not important to have a mentor of the same gender. Sensitivity of the mentor was viewed more important than matching the mentor and mentee based on same gender or ethnic (Sambunjak *et al.*, 2010).

## 2.7 Mentoring in Medicine

In the medical field, mentoring has been shown to be crucial for gaining clinical and research skills, as well as career development (Buddeberg-Fischer and Herta, 2006; Reynolds, 2008; Sambunjak *et al.*, 2006). As mentoring is vital for personal and professional development, the mentoring programs are not limited to guiding the medical students, but also to other groups of medical professionals, such as postgraduate students working towards fellowship and the junior faculty members (Kashiwagi *et al.*, 2013). On the other hand, the mentors are usually either senior faculty members guiding the junior faculty or students; or peers who had lived through a specific experienced, mentoring the co-equals who are new to the experience (DeCastro *et al.*, 2013; Stenfors-Hayes *et al.*, 2010). As for the medical students, their mentors are usually faculty members or senior medical students, who are more knowledgeable and have acquired certain experience in adapting with the medical learning environment (Yusoff *et al.*, 2010a).

According to a systematic review done by Sambunjak *et al.* (2006), 15 studies reviewed the prevalence of mentoring relationships among mentees and mentors in medical field. The prevalence ranged from 19% of faculty who reported currently having a mentor (Genuardi and Zenni, 2001) to 93% of primary care research fellows who reported having a mentor (Steiner *et al.*, 2002). However, in one study which focused on the third- and fourth-year undergraduate students, the prevalence of mentorship is only around 36% (Aagaard and Hauer, 2003). These percentage are expected to increase as

mentorship programs in academic medicine is growing rapidly in the past few years (Frei *et al.*, 2010; Sambunjak *et al.*, 2006).

### **2.7.1 Importance of mentorship in medicine**

Mentorship might hold one of the keys to a successful career pathway in medicine (Reynolds, 2008; Sambunjak *et al.*, 2006). As for the benefit to medical students, having a mentor increases the likelihoods of participating in research during medical school (Aagaard and Hauer, 2003). Not only that, well structured mentoring programs were found to support medical students' career planning (Zink *et al.*, 2007) as well as improve the students' research output and academic focus (Coates *et al.*, 2008). It also contributes to professionalism, increase performance and at the same time increase their overall well-being (Tekian *et al.*, 2001). Besides that, students from underrepresented minorities are better supported by this system (Tekian *et al.*, 2001). On top of that, graduates who did not have their own mentors have been found to claim that mentoring during medical school would have helped them in career planning as well as future residency programme (Buddeberg-Fischer *et al.*, 2009).

### **2.7.2 Outcomes for postgraduate and faculty members**

Several studies revealed that mentoring gave positive outcomes in terms of i) personal development and career guidance (Aagaard and Hauer, 2003; Stubbe, 2002), ii) specialty choice (Polsky and Werner, 2004; Thakur *et al.*, 2001), iii) academic career choice &

retention (Pearlman *et al.*, 2004; Wingard *et al.*, 2004) and iv) research development, productivity and success (Aagaard and Hauer, 2003; Palepu *et al.*, 1998; Pearlman *et al.*, 2004). For personal development and career guidance, studies indicated that mentoring resulted in personal growth, and development of academic competence of the interns and faculty members (Coleman *et al.*, 2005; Wingard *et al.*, 2004). Studies have also shown that by having a mentor, junior academic physicians will be more likely to have higher productivity in research and publication as well as accessibility to grants (Sambunjak *et al.*, 2006).

However, some studies reported the pitfalls of the mentoring systems in medicine which include; increase workload of the mentors and lack of mentoring skills perceived by the mentors (Mahood *et al.*, 1994); communication gap between both parties (Morzinski *et al.*, 1996); implementation difficulties in terms of time management and meeting arrangements (Cheah *et al.*, 2015; Kalén *et al.*, 2010); and process of mentor selection (Nasmith *et al.*, 1997).

## **2.8 Conceptual framework**

The conceptual framework of this study is based on four areas of supportive mentoring behaviours structure as described by Brodeur *et al.* (2015). The development of these four supportive mentor behaviours was based on the Mentoring Sociomotivational Model (MSM) (Larose and Tarabulsy, 2005). This model describes which mentor behaviours should be applied to the mentees during mentorship. In the MSM, there are three basic psychological needs which are the feelings of competence, relatedness, and